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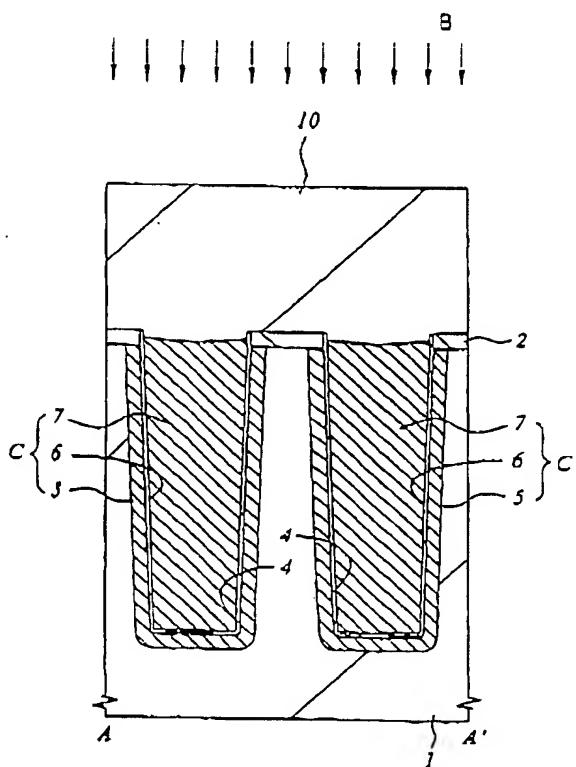
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| (51) 国際特許分類 ¹ : | H01L 21/8242, 27/108, 29/78 | 品川区 小山六丁目 18 番 11 号 Tokyo (JP). 木須治子 (KISU,Haruko) (発明者(死亡)の相続人) [JP/JP]; 〒142-0062 東京都 品川区 小山六丁目 18 番 11 号 Tokyo (JP). |
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| (25) 国際出願の言語: | 日本語 | (71) 出願人 (米国を除く全ての指定国について): 株式会社 日立製作所 (HITACHI, LTD.) [JP/JP]; 〒101-8010 東京都 千代田区 神田駿河台四丁目 6 番地 Tokyo (JP). 株式会社 日立超エル・エス・アイ・システムズ (HITACHI ULSI SYSTEMS CO., LTD.) [JP/JP]; 〒187-8522 東京都 小平市 上水本町 5 丁目 22 番 1 号 Tokyo (JP). |
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| (71) 出願人 (米国についてのみ): 木須 昭夫 (KISU,Teruo)
(発明者(死亡)の相続人) [JP/JP]; 〒142-0062 東京都 | (72) 発明者: 木須 謙明 (KISU, Teruaki) (死亡). | |

[統案有]

(54) Title: LONGITUDINAL MISFET MANUFACTURING METHOD, LONGITUDINAL MISFET, SEMICONDUCTOR STORAGE DEVICE MANUFACTURING METHOD, AND SEMICONDUCTOR STORAGE DEVICE

(54) 発明の名称: 縦型MISFETの製造方法、縦型MISFET、半導体記憶装置の製造方法および半導体記憶装置



(57) Abstract: When manufacturing a semiconductor storage device including a longitudinal MISFET having a source region, a channel forming region, a drain region, and a gate electrode formed on a side wall portion of the channel forming region via a gate insulation film, boron which is a reverse-conductive with respect to phosphor diffused in a polycrystal silicon film (10) constituting the channel forming region is counterdoped from the n-type polycrystal silicon film (7) constituting the source region of the longitudinal MISFET to the aforementioned polycrystal silicon film (10). This reduces effective impurities concentration in the polycrystal silicon film (10), thereby realizing a longitudinal MISFET having little leak current (off current).

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[統案有]

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(81) 指定国(国内): CN, JP, KR, SG, US.

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添付公開書類:

— 國際調査報告書

2文字コード及び他の略語については、定期発行される各PCTガゼットの巻頭に掲載されている「コードと略語のガイドスノート」を参照。

(57) 要約:

ソース領域、チャネル形成領域およびドレイン領域と、前記チャネル形成領域の側壁部にゲート絶縁膜を介して形成されたゲート電極とを有する縦型MISFETを備えた半導体記憶装置を製造する際、縦型MISFETのソース領域を構成するn型の多結晶シリコン膜(7)からチャネル形成領域を構成する多結晶シリコン膜(10)に拡散するリンとは逆導電型のホウ素を上記多結晶シリコン膜(10)にカウンタードープし、多結晶シリコン膜(10)の実効的な不純物濃度を低減することによって、リーク電流(オフ電流)の少ない縦型MISFETを実現する。

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP02/10510

CLASSIFICATION OF SUBJECT MATTER

Int.Cl' H01L21/8242, H01L27/108, H01L29/78

according to International Patent Classification (IPC) or to both national classification and IPC

FIELDS SEARCHED

Unknown documentation searched (classification system followed by classification symbols)

Int.Cl' H01L21/8242, H01L27/108, H01L29/78

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1926-1996	Toroku Jitsuyo Shinan Koho	1994-2003
Kokai Jitsuyo Shinan Koho	1971-2003	Jitsuyo Shinan Toroku Koho	1996-2003

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 63-29571 A (Hitachi, Ltd.), 08 February, 1988 (08.02.88), All drawings (Family: none)	3, 7, 12, 16, 23, 24, 25, 31, 51, 55, 56, 57, 63
X	US 5821579 A (LG Semicon Co., Ltd.), 13 October, 1998 (13.10.98), Figs. 2 to 4 & JP 8-213567 A Figs. 2 to 6 & KR 151197 B & WO 34998 A	51, 55, 56, 57, 63
		& US 5920777 A & AU 2042800 A

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Date of the actual completion of the international search
28 January, 2003 (28.01.03)Date of mailing of the international search report
12 February, 2003 (12.02.03)Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

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Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP02/10510

(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5670803 A (International Business Machines Corp.), 23 September, 1997 (23.09.97), All drawings & JP 8-241931 A All drawings & KR 188623 B & US 6174763 B	3, 7, 12, 16, 23-27, 31, 32, 51, 55-60, 63, 64